

Diet selection of Afrino sheep on Arid Karoo veld.

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Detailed knowledge of the botanical composition and nutritional content of the diet selected by livestock grazing natural veld is essential for the management of both livestock and veld. In order to determine the impact of livestock grazing on veld, it is not only sufficient to know what plants are being grazed, but also when specific species are being utilised. This information can be used to improve grazing management. In addition, knowledge of the effect of season, intensity of grazing and other factors is needed to manage livestock to enable them to meet their nutritional needs.

The grazing of a specific plant community will always result in the preferred utilisation of specific plant species, at least during specific times of the year. Numerous studies have shown that selective grazing can not be explained on the basis of a single factor, as it is determined by a range of interactive factors.

Stocking rate influences the quantity and quality of available grazing, which have a direct effect on livestock production. Differences in the intake of nutrients at different stocking rates reflected the effect of stocking rate on the botanical composition and digestibility of the diet.

This study was conducted to study the botanical composition of the diet selection of Afrino sheep on Arid Karoo veld and to quantify the effect of stocking rate on the quality of the diet. Eight oesophageally fistulated Afrino sheep (four rams and four ewes) were used to collect forage samples at the end of a three month grazing period, four times a year (February, May, August, November), at four different stocking rates.

Samples were collected, washed and fixed on four consecutive days and pooled in genders for treatments, in order to obtain representative samples. Botanical composition of the samples was determined by means of a microscope point technique (on a dry mass basis). A diet score was calculated to investigate the effect of specific factors on diet selection. Portions of the collected extrusa samples were washed, dried and milled before being used to assess the chemical composition of the diets. The milled samples were analysed for nitrogen and acid fibre content, as well as *in vitro* digestibility of organic matter (IVDOM).

Significant correlations were observed between the various plant components in the diet. Stocking rate was found to have a significant effect on the botanical composition of the diet. No strong relationship could be detected between diet score and the separate independent variables related to the selected diet. Interactions between the different variables were detected by a stepwise multiple regression procedure. Stocking rate, individual camps, as well as canopy spread and veld condition score at the end of the grazing period were identified as the most important contributors to diet score.

Despite considerable variation in botanical composition of the diets, relatively small variation in the quality of the diets was found. This variation was primarily determined by sampling season. Significant interactions between stocking rate and sampling season were found for all quality parameters. Stocking rate had no definite effect on crude protein content or digestibility of organic matter, but diet quality was related to the botanical composition of the diet.

These results indicate that the animals utilized a wide range of plant components at various intensities throughout the year. This enabled them to ensure an intake of sufficient quality throughout the trail period.